



# **Minnesota Drinking Water Annual Report for 2025**

**STATUS OF PUBLIC DRINKING WATER SYSTEMS AND  
STRATEGIC INITIATIVES**

**May 2026**

## **Minnesota Drinking Water Annual Report for 2025**

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## Executive summary

<b>Over 99%</b> of all public water systems met federal health standards	<b>6,582</b> public water systems monitored and inspected statewide	<b>1,304,840</b> service lines inventoried
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Since 1995, the Minnesota Department of Health (MDH) has reported annually to Minnesota residents and the United State Environmental Protection Agency (EPA) on the status of the state's public drinking water systems. This report evaluates compliance with the federal Safe Drinking Water Act, highlights the challenges facing public water suppliers, and outlines the actions being taken to address them.

Minnesota's drinking water protection program is built on a multi-barrier approach: protecting water sources, treating water effectively, monitoring quality after treatment and maintaining the infrastructure components--storage tanks, pipes, and distribution systems--that carry safe water to the tap. The 2025 monitoring results reflect the strength of that approach. Throughout the year, more than 99% of Minnesota's 6,582 public water systems met all federal health-based drinking water standards.

**The bottom line:** More than 99% of Minnesota's public water systems met all federal health-based drinking water standards in 2025. Where violations occurred, consumers were notified, and corrective actions were taken.

Protecting public drinking water is a shared responsibility. While MDH administers and enforces the Safe Drinking Water Act on behalf of EPA, that work depends on the collective efforts of water system operators, government agencies, industry partners, nonprofit organizations, and individual Minnesotans, including ongoing collaboration with partners like the Minnesota Rural Water Association. Supporting public water systems is a core MDH function, and it includes operator training and certification, facility inspections, and technical assistance on emergency preparedness, infrastructure security, and cybersecurity. Each year, MDH helps community water systems issue annual Consumer Confidence Reports to their customers, which provide local drinking water quality and compliance information at the system level.

Replacing lead service lines, the pipes that connect water mains to household plumbing, remained a major state priority in 2025. MDH continued supporting systems through that work and expanded its focus on lead in early care and education settings, providing guidance, free testing, remediation grants, and an interactive public map so families can see results for the facilities their children attend.

Advancing health equity was a central focus this year. MDH continued building equity into planning, funding, and technical support, prioritizing water systems serving communities with the greatest infrastructure challenges and fewest resources. In 2025, MDH awarded 107 Source Water Protection Grants; 74 of them (69%) went to communities at or below the median household income level, directly reflecting that commitment.

Addressing contaminants of emerging concern remained a high priority. MDH and its contractors collected more than 1,800 PFAS samples at community and noncommunity water systems across the state, helping systems prepare for EPA's enforceable PFAS limits, which take effect in 2029. The Drinking Water Ambient Monitoring Program, supported by the Clean Water Fund, conducted its second full round of annual sampling in 2025, providing ongoing monitoring capacity for per- and polyfluoroalkyl substance (PFAS), nitrate, arsenic, bacteria, and other priority contaminants in drinking water sources statewide.

MDH also continued its climate resiliency and cybersecurity work, helping water systems anticipate and respond to the growing risks posed by extreme weather events and digital threats to critical infrastructure.

Everyone plays a part in ensuring safe water. The goal of this report is to give Minnesotans a clear picture of how drinking water is protected statewide and to highlight the ongoing work that keeps Minnesota's water safe today and into the future.

# A profile of Minnesota's Drinking Water Protection program

## From typhoid to PFAS: A century of progress and new challenges

Minnesota Department of Health (MDH) began as the Minnesota State Board of Health in 1872, largely because of waterborne diseases including typhoid fever. Advances in water treatment and disinfection in the early 1900s led to the near elimination of diseases like cholera, dysentery, and hepatitis A from public water supplies.

More than a century later, the importance of safe water is as strong as ever, but the challenges look different. The federal Safe Drinking Water Act (SDWA), passed in 1974, set the national regulatory framework. Minnesota became one of the first states to take over enforcement within its own borders, achieving primacy in 1976.

## Who we protect

System count	System type
<p><b>6,582</b> Total public water systems in Minnesota</p>	<p><b>Public water system</b></p>
<p><b>965</b> community water systems</p>	<p>To be considered “public,” a water supply system must have its own water source and provide water to 25 or more people for at least 60 days per year or have 15 or more service connections.</p>
<p><b>729</b> municipal (city/town) systems</p>	<p><b>Community water systems (CWS)</b></p> <p>Provide water to homes and residences: cities, towns, manufactured home parks, apartments, and more. Most use groundwater from underground wells; 23 draw from surface waters like lakes and rivers.</p>
<p><b>5,617</b> noncommunity water systems</p>	<p><b>Noncommunity water systems (NWS)</b></p>
<p><b>77</b> surface water systems</p>	<p>Serve people at restaurants, resorts, schools, workplaces, and rest stops; places where people spend time but may not live; 54 draw from surface waters.</p>

## Three pillars of drinking water protection

Minnesota's drinking water protection is based on three foundational strategies:

Prevention	Treatment	Monitoring
Protecting water at the source, managing land use, and regulating infrastructure design, and stopping contamination before it starts.	Filtering and disinfecting water to remove contaminants. Surface water systems need the most treatment; some groundwater systems need none.	Testing treated water regularly for a wide range of contaminants. In Minnesota, most required samples are collected by MDH field staff; a key program strength.

### Prevention

Preventing contamination at the source is a cornerstone of drinking water protection. Public water systems draw water from lakes, rivers, and groundwater wells, all of which can be affected by surrounding land use and human activity. Prevention efforts focus on managing land use, regulating the design and construction of water supply infrastructure, and controlling potential sources of pollution before they reach drinking water sources.

MDH engineers review plans for all aspects of public water supply, including wells and water intakes, treatment and storage facilities, and distribution systems to ensure they meet safety requirements. All water operators in Minnesota must be licensed, and MDH plays a key role in operator training and certification, helping ensure systems are run safely and effectively.

### Source Water Protection

The Source Water Protection (SWP) Program is central to the prevention strategy. SWP plans identify the land and water areas that supply drinking water, assess their vulnerability to contamination, and outline strategies to reduce or manage potential risks. MDH requires SWP planning for all community and nontransient noncommunity water systems that rely on groundwater.

MDH is also expanding the SWP program to better support systems that use surface water. Surface water planning is voluntary, but progress is ongoing. MDH has completed several Source Water Assessments and Surface Water Intake Protection plans in collaboration with community water systems (CWSs) and external partners, with multiple communities currently developing their own plans.

### Assessing vulnerability to contamination

The level of protection and monitoring a system needs depends in part on how vulnerable its source of supply is to contamination. MDH conducts vulnerability assessments using multiple factors. For groundwater systems, those factors include well construction, geological setting, water quality trends, and well usage patterns. Systems identified as more vulnerable receive enhanced monitoring, inspections, and oversight; systems with lower vulnerability require fewer interventions.

**Why does groundwater often need less treatment?** As water moves through layers of soil and rock, natural filtration can remove contaminants, including bacteria and parasites like *Cryptosporidium*. This natural protection means many groundwater systems do not require routine disinfection, while surface water systems, which are more directly exposed to contamination, typically require more extensive treatment.

### Treatment

Most community water systems use some form of treatment to ensure water is both safe and palatable. Treatment methods vary depending on the water source and how vulnerable it is to contamination. Many systems require routine disinfection to protect against bacteriological contamination. Groundwater systems that are properly constructed and located in low-vulnerability aquifers are less likely to need disinfection.

Surface water systems must apply more extensive treatment, including filtration and disinfection, because lakes and rivers are more directly exposed to contamination from the surrounding environment. MDH reviews plans for proposed treatment systems to make sure they are designed and will operate as intended. MDH staff also provide ongoing technical assistance, field support, and training to help operators maintain their systems effectively over time.

### Monitoring

Monitoring is a critical component of drinking water protection and a legal requirement under the Safe Drinking Water Act. Public water systems must regularly collect samples of treated water and submit them to the MDH Public Health Laboratory or another MDH-accredited laboratory. Samples are analyzed for a wide range of potential contaminants, which are classified as either chronic or acute.

Chronic contaminants	Acute contaminants
<p>Chronic contaminants don't cause immediate effects. Their health effects build up over years of repeated exposure. Long-term exposure to certain pesticides or radionuclides, for example, can increase the risk of cancer or other chronic health conditions. EPA sets standards for these contaminants conservatively: the limit is calculated to keep health risk at a negligible level even for someone drinking that water every day over an entire 70-year lifetime.</p>	<p>Acute contaminants can make people sick quickly, within hours or days of a single exposure. Bacteria like <i>E. coli</i> are a common example: if detected, a boil water advisory is issued immediately to protect public health. Standards for acute contaminants are set to prevent these short-term health effects from occurring in the first place. When a system exceeds an acute standard, residents are notified right away, and the system must take immediate corrective action.</p>

When contaminant levels exceed allowable limits, system owners and operators are legally required to notify consumers and take corrective action to reduce health risks. While public water systems are ultimately responsible for meeting monitoring requirements, MDH plays an active role in sample collection, to ensure consistent oversight, reduce burden on operators,

and support compliance. Most required samples in Minnesota are collected by MDH field staff. This collaborative approach has contributed to Minnesota's strong national record for drinking water monitoring and compliance.



*MDH District engineers inspect water systems throughout the state according to the Safe Drinking Water Act. These regular inspections ensure that the water treatment plant and wells throughout the system meet requirements and address issues that are observed.*

## What we test for and why

Minnesota's public water systems are tested for several types of contaminants, which are classified as either **acute** causing immediate or short-term health effects; or **chronic**, where the risk of serious conditions such as cancer increases over years of repeated exposure.

While some standards are set to prevent acute harm, most are designed to address chronic risk. That distinction shapes how standards are set, how often testing occurs, and how urgently a system must respond when a limit is exceeded.

If a public water system exceeds a Maximum Contaminant Level (MCL) or advisory standard, the water supply operator, with MDH assistance, must notify customers and take corrective action to reduce or eliminate the contamination.

The major types of contaminants MDH tests for include:

### Acute contaminants

*Immediate risk – standards set to prevent short-term health effects*

### Bacteriological contamination

Systems serving more than 1,000 people are tested at least monthly for coliform bacteria. Smaller systems are tested four times a year or annually. Coliform testing is a general indicator of water safety. If *E. coli* or another pathogen is detected, customers receive a boil water notice.

*E. coli* and other pathogens can make people sick within hours or days. A positive result triggers an immediate boil water notice.

The coliform test works as a general indicator of water safety. A negative coliform test result is a reliable sign that the system is adequately protected against a wide range of disease-causing organisms.

When coliform bacteria are detected, it signals that the system may be compromised and that further investigation is needed. It is important to note that total coliform bacteria, when found without any detection of *E. coli*, are generally not harmful on their own. However, their presence tells us something may be wrong. The system works with MDH to identify the source of the contamination and take steps to correct it.

If *E. coli* or another pathogen is detected, the situation becomes more urgent. *E. coli* is a direct indicator of fecal contamination and poses a real risk to human health. In that case, customers are notified immediately, and the water supplier issues a boil water notice, advising residents to boil their water before drinking, cooking, or brushing teeth until the system is safe again.

## Chronic contaminants

*Long-term risk – standards set to protect against decades of exposure*

### Pesticides and industrial contaminants

Minnesota's water systems are routinely tested for more than 100 pesticides and industrial contaminants, including synthetic organic compounds (SOCs) and volatile organic compounds (VOCs). How often a system is tested - anywhere from four times a year to once every six years - depends on the specific chemical and the system's vulnerability to contamination (see [\*\*\*Assessing Vulnerability to Contamination in the Prevention section of this report\*\*\*](#)). Some water supply systems are formally exempt from testing for a particular contaminant if it is not used or present in their area.

EPA has set maximum contaminant levels (MCLs) for 60 of the most common pesticides and industrial contaminants found in drinking water. For the other pesticides and industrial contaminants without an MCL, advisory standards have been developed, guiding how test results are assessed and when action is required.

### Inorganic chemicals

Community and nontransient noncommunity systems are tested for 13 inorganic chemicals (in addition to nitrate; see below). The full list includes antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, sulfate, and thallium. Some of these chemicals may occur naturally in groundwater rather than from human activity.

Testing frequency depends on past results. If a system has no history of detecting these chemicals, testing is done once every nine years. If past results show a presence, testing may happen as often as four times a year. If a system exceeds the MCL for any of these chemicals, water customers are notified, and appropriate steps are taken to reduce levels of these chemicals in the water.

### Radioactive elements

**What we test for:** Radium-226 & 228, gross alpha emitters, and uranium. These radioactive elements are naturally present in Minnesota's geology. They enter drinking water through the natural dissolution of minerals in underground aquifers, not through human activity or pollution.

Community water systems in Minnesota are usually tested once every three years, sometimes as often as once per year or even quarterly in some cases for radioactive elements, specifically radium-226 and 228, gross alpha emitters, and uranium. These are chronic contaminants: they are present in Minnesota's geologic materials and enter drinking water through the gradual dissolution of minerals in underground aquifers, not through human activity or pollution.

Because radioactive elements are chronic contaminants, health effects develop over many years of exposure rather than immediately. Testing reflects this long-term nature: results are measured using a rolling annual average. That means samples are collected over four quarters

and those results are averaged together. This approach is better suited to identifying the long-term trends that matter most when monitoring radioactive materials.



*South St. Paul recently built a new treatment plan to address its radium issue.*

Water testing is typically done once every three years, though systems with higher levels may be tested annually or even quarterly. If a system exceeds the federal MCL, water customers are notified. Because addressing radioactive contaminants is a long-term undertaking, systems that need to reduce their levels enter into long-term compliance agreements with MDH outlining the timeline and corrective action plan, whether that means infrastructure upgrades, installing treatment, or identifying an alternative water source.

## **Disinfection byproducts**

Disinfection is one of the most important tools for keeping drinking water safe. It reduces the risk of microbiological organisms, including bacteria, viruses, and protozoa, that can cause and spread disease. The most common disinfection method is adding chlorine to the drinking water supplies. Chlorine is effective against bacteria and viruses at the source, and it continues working as water travels from the treatment plant through the distribution system to the consumer's tap, inhibiting microbial growth along the way.

However, even though chlorine has been a lifesaver regarding drinking water, it also has the potential to form byproducts that are known to produce harmful health effects. When it combines with natural organic material in raw water, particularly in surface water sources like rivers, lakes, and streams, it can form byproducts called trihalomethanes (THMs) and haloacetic acids (HAAs). Repeated exposure to elevated levels of these byproducts over a long period of time could increase a person's risk of cancer. This is a chronic risk, not an immediate one, but it is taken seriously.

The risk of disinfection byproducts is greater for systems that use surface water, because those sources are more likely to contain the organic material that reacts with chlorine. All community and nontransient noncommunity water systems that add a disinfectant must regularly test their treated water for THMs and HAAs. If either exceeds EPA limits, the system must take corrective action and notify all residents served by the water system.

## Lead and Copper

All community and nontransient noncommunity public water systems are tested for lead and copper. Samples are collected under worst-case conditions after water has been sitting idle in pipes overnight to capture the highest potential levels.

**Important:** Lead contamination in drinking water often comes from lead service lines or plumbing inside homes, not from the water source itself. Water sitting overnight in lead pipes, lead solder, or brass fixtures can absorb lead. Run your cold water tap for 30 seconds to 2 minutes if it hasn't been used in several hours. You may need to run the water longer if you have a lead service line (find out at [Do You Have a Lead Service Line](https://maps.umn.edu/LSL) (<https://maps.umn.edu/LSL>)).

In community water systems, water samples are collected from several homes within each system to determine if it exceeded the federal “action level” of 15 parts per billion (ppb) for lead or 1,300 ppb for copper. If a system exceeds the action level for lead and copper in more than 10 percent of the location tested, the system is in exceedance and must take corrective action and increase testing. Testing requirements – the number of samples taken and the testing frequency – are based on population, historical results, and if any changes in the source of the water or treatment have occurred.

Lead in drinking water is not an environmental contamination problem in the traditional sense. Water is almost never contaminated with lead at its source or when it first enters the distribution system. The problem often occurs inside homes. Water that sits overnight in lead pipes, lead plumbing solder, or brass fixtures can absorb lead before it reaches your tap. Lead can also come from a lead service line, in cases where a home is served by a lead service line. Lead exposure is a potentially serious health concern, particularly for young children, whose developing bodies are more vulnerable to its effects.

It is worth noting that drinking water typically accounts for a relatively small share of a person's total lead exposure; people encounter lead through multiple sources. That said, it remains a source worth controlling and eliminating. Some Minnesota water systems address this by treating their water to make it less likely to absorb lead from plumbing. Removing lead service lines, the pipes that connect the water main to a home, is a direct and lasting solution when these lines are present. MDH's efforts to accelerate that work are discussed in the Strategic Initiatives section of this report.

Copper is also not typically a source water contaminant. Rather, copper in water systems most typically results from corrosion of copper or copper-containing household plumbing materials.

## Contaminants that can cause both acute and chronic health effects

### Lead

Lead is primarily a chronic contaminant. The main concern is long-term developmental effects, especially in young children exposed over time. However, it also has an acute dimension: when a system exceeds the action level, a Tier 1 public notice must be issued within 24 hours, which is an immediate regulatory response.

So, lead is chronic in its primary health concerns, but with acute regulatory consequences.

### Nitrate and nitrite

All public water systems in Minnesota are tested at least once a year for nitrate. Nitrate occurs naturally in the environment but can also enter water through fertilizer runoff, decaying plant and animal waste, and sewage.

Nitrate is primarily a health concern for infants under six months of age. An infant's digestive system can convert nitrate into nitrite, which interferes with the blood's ability to carry oxygen. The result is a rare but serious illness called methemoglobinemia, commonly known as "blue baby syndrome", which can be fatal if nitrate levels are high enough and the illness is not treated promptly.

The MCL for nitrate in drinking water is 10 parts per million (ppm). If a public water system exceeds that limit, customers are notified right away and advised not to use the water for infant formula or any other purpose that could result in an infant under six months consuming it. The advisory stays in place until nitrate levels are brought back down, through treatment or, in some cases, drilling a new water well.

For older children and adults, nitrate in drinking water is generally not a risk. After six months of age, the digestive system stops converting nitrate into nitrite. The average adult already takes in about 20–25 milligrams of nitrate per day through food, primarily vegetables. However, some adults with low stomach acidity or certain blood disorders may still be at risk for methemoglobinemia.

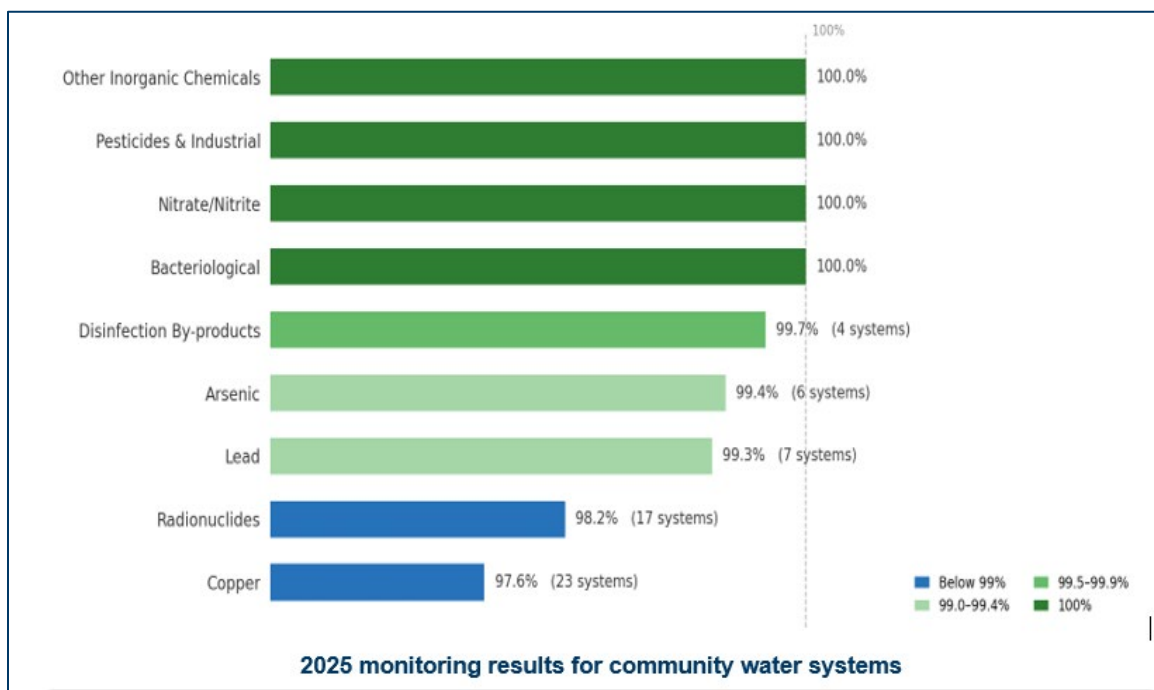
Emerging science suggests there may be health impacts from long-term exposure to nitrate at levels below the current MCL. MDH continues to track the research and will update its guidance when the data is strong enough to support it.

## Monitoring results for calendar year 2025

This section provides a summary of results of monitoring performed in 2025. When a maximum contaminant level (MCL) violation or Action Level Exceedance (ALE) occurs, a water system must take corrective actions. These actions include public notification to inform affected residents of the situation and if there are any special precautions they should take. In all cases noted here, residents were advised directly by the water system at the time the violation occurred. All community water systems also communicate any violations in their annual water quality reports (called Consumer Confidence Reports) each year.

**Compliance in context - 2025 at a glance:** In 2025, 97.5% of Minnesota's 965 community water systems met all federal health-based standards. Where violations occurred, they were concentrated in five categories: copper (23 systems), radionuclides (17 systems), lead (7 systems), arsenic (6 systems), and disinfection byproducts (4 systems). In every case, affected residents were notified directly and corrective actions are actively underway. Among the 5,617 noncommunity water systems in Minnesota, 99.4% met all federal health-based standards in 2025. Violations and exceeded occurred in the following categories: copper (9 systems), arsenic (3 systems), lead (2 systems), bacteriological (10 systems), and nitrate/nitrite (8 systems).

### Community Water Systems (CWS)



## 2025 monitoring results for community water systems

**How to read this table:** Rows are ordered by compliance rate lowest first, so contaminants with highest compliance appear at top.

■ Below 99% 
 ■ 99.0–99.4% 
 ■ 99.5–99.9% 
 ■ 100%

Contaminant	Systems Tested	Systems with Violations or ALEs	Population Affected	Compliance Rate
Copper	965	23 (ALE*)	87,516	97.6%
Radionuclides	965	17	98,251	98.2%
Lead	965	7 (ALE*)	28,277	99.3%
Arsenic	965	6	711	99.4%
Disinfection Byproducts	731	4	4,889	99.7%
Bacteriological	965	0	—	100%
Nitrate/Nitrite	965	0	—	100%
Pesticides & Industrial	965	0	—	100%
Other Inorganic Chemicals	965	0	—	100%

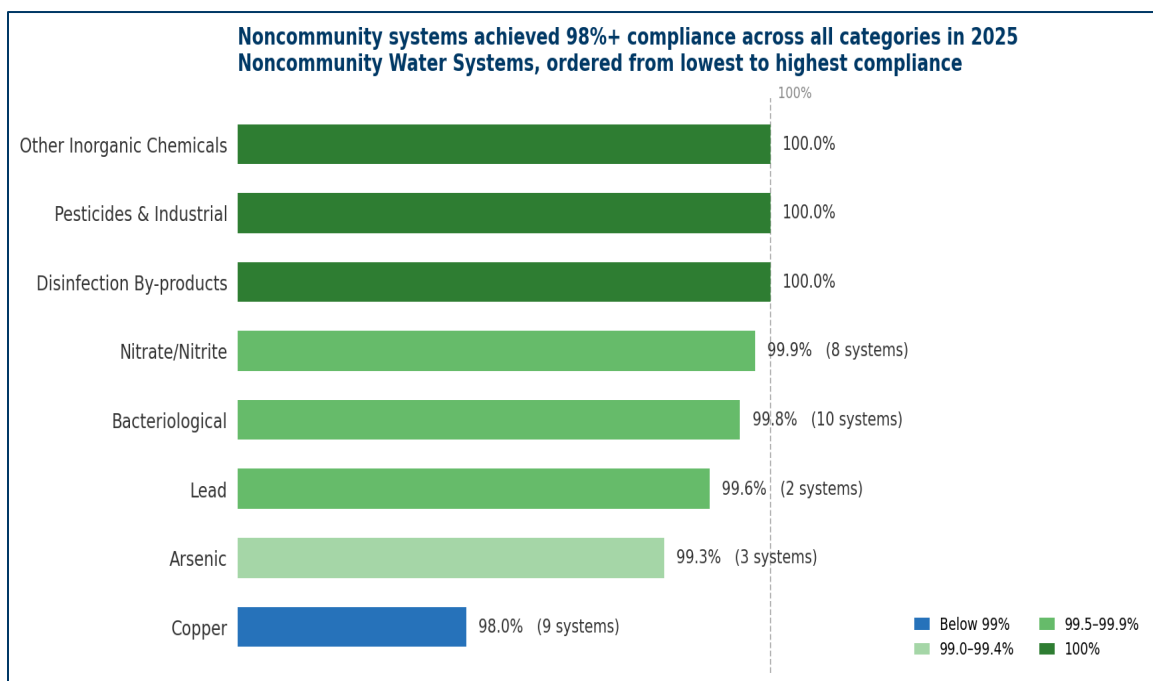
*\*ALE = Action Level Exceedance. For lead and copper, a system is in exceedance when more than 10% of homes sampled exceed the action level (15 ppb for lead; 1,300 ppb for copper). While not a formal SDWA violation, ALEs require corrective action to be taken. All systems with violations or ALEs worked with M/DH to make corrections and retest.*

**The takeaway:**

Minnesota's community water systems delivered safe drinking water at a consistently high rate across all contaminant categories in 2025. Four of nine categories had zero violations, as showing in the table. Where violations occurred within categories, compliance rates never dropped below 97%. Copper had the most exceedances – in 23 systems - typically associated with corrosion of household plumbing materials. When violations occur, affected residents are notified directly and systems work with MDH to correct the problem. That level of performance reflects decades of sustained investment in source protection, treatment, monitoring, and operator training across the state.

**Noncommunity Water Systems (NWS)**

Noncommunity water systems serve people at locations where they spend time but do not live such as restaurants, schools, workplaces, resorts, and highway rest stops. Minnesota has 5,617 noncommunity systems. Unlike community systems, noncommunity systems are not regulated for radionuclides. In 2025, noncommunity systems achieved 98% or higher compliance in every regulated category.



## 2025 monitoring results for noncommunity water systems

**How to read this table:** Rows are ordered by compliance rate, lowest first, so priority areas appear at top. ■ Below 99% ■ 99.0–99.4% ■ 99.5–99.9% ■ 100%

Contaminant	Systems Tested	Systems with Violations or ALEs	Population Affected	Compliance Rate
Copper	460	9 (ALE*)	3,390	98.0%
Arsenic	460	3	1,794	99.3%
Lead	460	2 (ALE*)	140	99.6%
Bacteriological	5,617	10	1,199	99.8%
Nitrate/Nitrite	5,617	8	428	99.9%
Disinfection Byproducts	44	0	—	100%
Pesticides & Industrial	460	0	—	100%
Other Inorganic Chemicals	460	0	—	100%

*\*ALE = Action Level Exceedance. For lead and copper, a system is in exceedance when more than 10% of homes sampled exceed the action level (15 ppb for lead; 1,300 ppb for copper). While not a formal SDWA violation, ALEs require corrective action. All systems with violations or ALEs worked with MDH to make corrections and retest.*

*Note: Noncommunity water systems are not regulated for radionuclides. The number of systems tested varies by contaminant: 5,617 systems are tested for bacteriological contamination and nitrate, while 460 are tested for copper, lead, arsenic, pesticides, and other inorganic chemicals.*

**The takeaway:** Noncommunity systems achieved strong compliance across all eight regulated contaminant categories in 2025. Three of eight categories had zero violations. Copper had the most exceedances (in 9 systems), followed by bacteriological violations (in 10 systems), and nitrate (in 8 systems), contaminant categories where the affected populations are smaller and corrective action is typically swift. In every case, affected residents were notified directly

and systems worked with MDH to identify the problem and make corrections. Overall, these systems serve a wide and varied public, and their compliance record reflects the strength of MDH's monitoring and technical assistance programs statewide.

## Key findings by contaminant

### **Pesticides and industrial contaminants**

There were zero violations across 965 community systems and 466 nontransient noncommunity systems in 2025. MDH conducted 25,281 tests at community systems and 11,727 tests at noncommunity systems, and no system exceeded MCL standards for any pesticide or industrial contaminant. This is a strong result and reflects the effectiveness of source protection and vulnerability-based monitoring across the state.

### **Bacteriological contamination**

There were zero violations among community water systems in 2025. Ten noncommunity systems - which include restaurants, schools, and rest stops - out of 5,620 had violations. All systems with violations worked with MDH staff to identify the source of contamination, make the necessary corrections, disinfect their systems, and retest before returning to normal operation.

### **Nitrate and nitrite**

There were zero new nitrate MCL violations among community water systems in 2025. One system carried an ongoing violation from 2024; with increased monitoring, its 2025 results were all below the MCL. Of the 51 community systems participating in the ongoing nitrate source water monitoring program, where water is sampled before any treatment is applied, six had raw untreated water above the MCL. MDH uses that data to help those systems reduce nitrate levels at the source.

Eight noncommunity systems exceeded the MCL for nitrate. Those systems notified water customers, offered bottled water to households with infants, and worked with MDH to install treatment or find a new water source.

No systems exceeded the MCL for nitrite.

### **Arsenic**

Six community systems and three noncommunity systems exceeded the MCL for arsenic by the end of 2025. Residents were notified; no restrictions on water use were required. Residents were told this was not an emergency and were advised to consult their doctor with any concerns. Each affected system has begun working to reduce arsenic levels below the MCL, evaluating treatment options, pursuing infrastructure or operational changes, or identifying an alternative water source.



### Other inorganic chemicals

No community or noncommunity water systems exceeded the MCL for other inorganic chemicals in 2025.

### Radionuclides

Seventeen (17) community systems exceeded MCLs for radium-226 & 228 and/or gross alpha emitters by the end of 2025. Residents were notified and advised to consult their doctor with any concerns. Some systems have restrictions placed on water use while long-term solutions are developed. Because radionuclides are chronic contaminants, meaning health effects would build up over many years of exposure, affected systems enter into long-term compliance agreements with MDH that outline a clear corrective action plan. In several cases, previously installed treatment has reached the end of its useful life and must be replaced. Noncommunity water systems are not regulated for radioactive elements.

### Disinfection byproducts

Four community systems exceeded MCLs for disinfection byproducts - specifically trihalomethanes (THMs) and haloacetic acids (HAAs) - in 2025. All four affected systems are actively working to reduce the concentrations of disinfection byproducts to below the MCL. No noncommunity systems had violations.

### Lead and Copper

Seven community systems exceeded the lead action level and 23 exceeded the copper action level in 2025. Two systems exceeded both. For noncommunity systems, one exceeded the lead action level, eight exceeded copper, and one exceeded both. A 24-hour notification is required when a lead action level exceedance occurs. MDH works directly with these systems through the process.

Lead and copper monitoring has been required under the EPA's Lead and Copper Rule since 1992. Samples are collected in individual homes under worst-case conditions, after water has been sitting idle in pipes overnight, to capture the highest potential levels. A system is in exceedance when more than 10% of homes sampled exceed the action level: 15 parts per billion (ppb) for lead or 1,300 ppb for copper.

Systems in exceedance must take corrective action and begin an ongoing public education program. Corrective actions include corrosion control, adjusting water chemistry to make it less likely to absorb lead or copper from pipes and fixtures, and replacing lead service lines, which connect water mains to household plumbing. All affected systems are currently exploring options and conducting required public outreach.

## Advancing health equity in drinking water

The MDH Drinking Water Protection (DWP) Section recognizes that equitable access to safe drinking water is fundamental to public health. Access to clean, affordable drinking water is both a fundamental human right and a critical social determinant of health. When that access is limited or compromised, environmental and economic inequities deepen, increasing the risk of adverse health outcomes. DWP's work reflects a sustained commitment to correcting these disparities by supporting safe, reliable, and affordable drinking water systems in every community across Minnesota.

Some communities face greater challenges than others. Communities with older infrastructure, lower incomes, or histories of disinvestment carry a heavier burden and when water access is compromised, health risks follow. DWP's strategic initiatives emphasize infrastructure improvements, targeted funding, and innovative practices to ensure that all Minnesotans have access to the same high-quality water, addressing and correcting existing inequities across the state.

### The DWP Health Equity Workgroup: Creating sustainable change

Since its founding in 2022, the DWP Health Equity Workgroup has focused on ensuring that communities with the greatest water system and public health challenges are centered in decisions about drinking water, not just acknowledged. In 2025, this focus grew stronger. Equity was built into planning efforts, funding decisions, and technical support for systems serving communities with fewer resources. The workgroup has also helped staff better understand the barriers some communities face, language access, economic pressure, historical distrust, and how to address those barriers practically.

***Health equity is not just something we talk about, it is becoming part of how the work gets done every day.***

Some work is still taking shape. Efforts to gather community stories and build stronger partnerships are in development and will continue in future years. These are investments in the kind of trust and responsiveness that equitable water protection ultimately requires. Together, these steps show a clear shift from talking about equity to putting it into practice through everyday decisions and long-term planning.

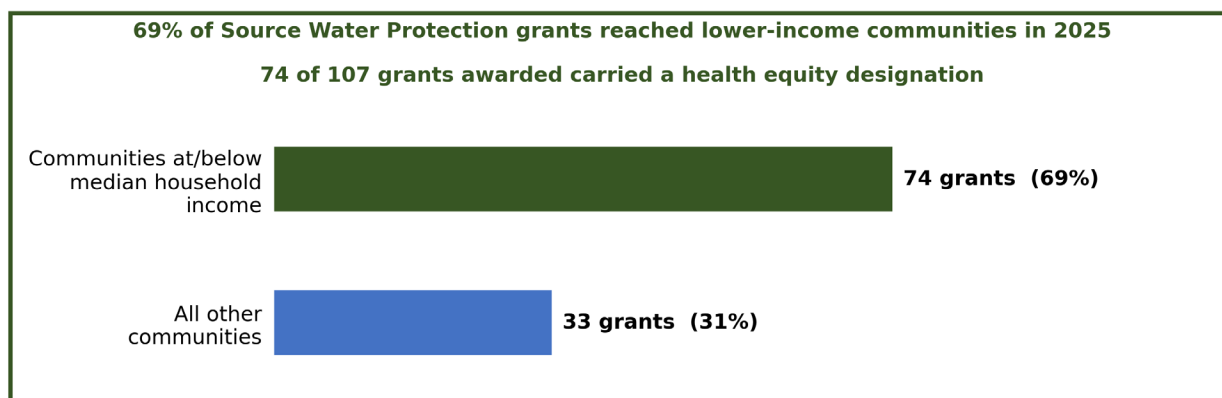
### Where equity showed up in 2025

#### Drinking Water Revolving Fund (DWRF)

The Drinking Water Revolving Fund (DWRF) provides financial support to public water systems using low-interest loans and principal-forgiveness grants. Many communities lack the financial resources needed to complete necessary infrastructure projects. Projects are prioritized for funding based on public-health protection and financial need. Additionally, DWRF provides funding for technical assistance to water systems. This combination of funding and technical assistance helps ensure that all communities across Minnesota are able to provide safe and reliable drinking water to all Minnesotans.

## Source Water Protection grants

**How to read this chart:** This horizontal bar chart shows how 107 Source Water Protection grants were distributed in 2025. Each bar represents a group of recipient communities. Bar length is proportional to the number of grants received. Dark green indicates communities at or below the median household income, those receiving a health equity point. Blue indicates all other communities receiving a grant.



Of the 107 Source Water Protection grants awarded in 2025, 74 (69%) of grants went to communities operating at or below median household income, earning them a health equity point for their commitment to serving underserved populations. These grants reflect MDH's commitment to directing resources where they are needed most.

## Lead service line replacement funding

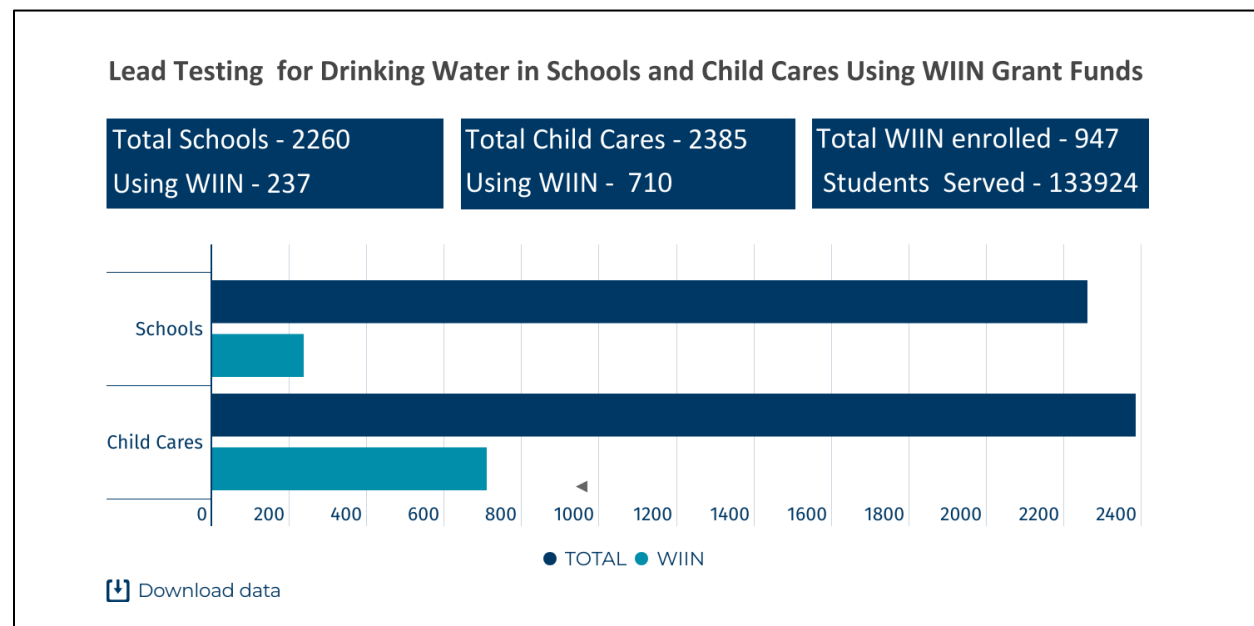
Lead service line replacement funding is explicitly prioritized for communities where children have elevated blood lead levels, where households have lower incomes, and where children under 5 are concentrated. The [Minnesota Service Line Replacement Priority Map \(https://maps.umn.edu/lead-prioritization/\)](https://maps.umn.edu/lead-prioritization/) helps project proposers apply this equity lens systematically.

## Protecting children: schools and child care facilities

Reducing lead exposure for children is a top public health priority for MDH. Lead exposure can affect children's developing brains and bodies, and children spend much of their time in schools and child care facilities where older plumbing may be present. Special attention is given to schools and facilities serving communities that have been most affected, ensuring support goes where it is needed most.

MDH works in collaboration with the Minnesota Department of Education (MDE) and the Minnesota Department of Human Services (DHS) to help schools and child care facilities meet lead testing requirements. MDH and MDE created a model plan that schools can use for testing in their buildings. Families can find out how much lead, if any, has been detected at all public and charter schools and licensed child care centers using MDH's interactive online map. More information can be found on the [Results and Metrics for Early Care and Education Settings \(https://www.health.state.mn.us/communities/environment/water/schools/results.html\)](https://www.health.state.mn.us/communities/environment/water/schools/results.html) webpage.

**How to read this chart:** The bars compare the total number of schools (2,260) and child care facilities (2,385) in Minnesota against those currently using WIIN grant funds for lead testing. WIIN-funded facilities - 237 schools and 710 child cares - represent the share of the testing effort supported by federal infrastructure dollars.

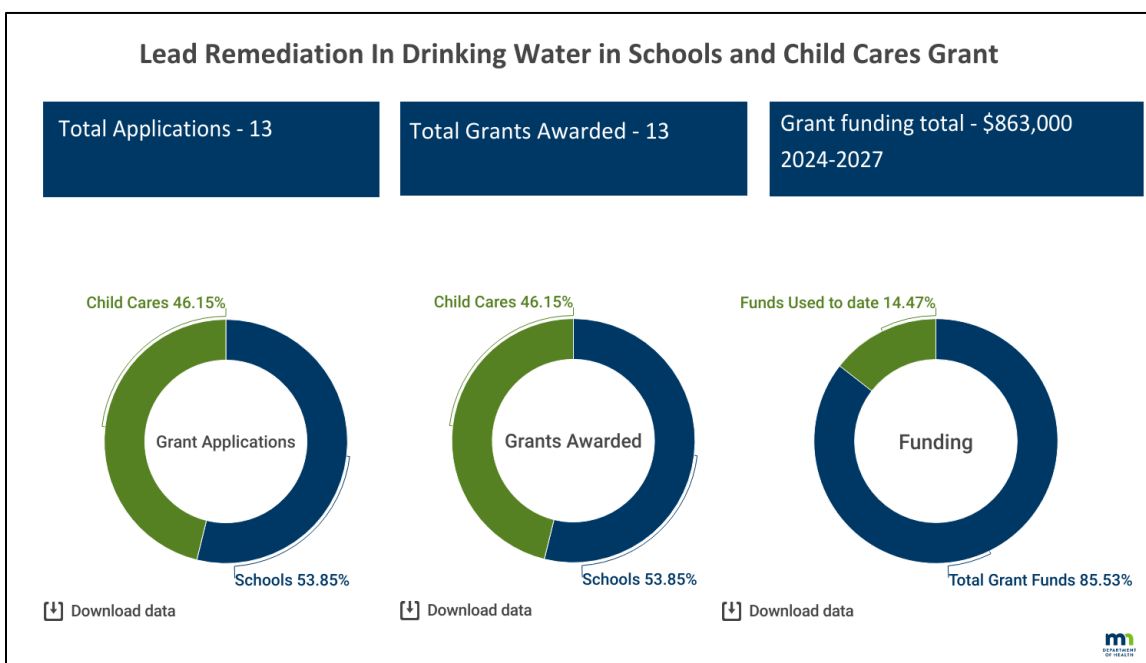


*Lead Testing for Drinking Water in Schools and Child Cares Using WIIN Grant Funds*

### Lead remediation grant program

MDH's Lead Remediation Grant program awarded all 13 applications received for the 2024–2027 funding cycle, a 100% award rate. Total funding allocated is \$863,000, split 53.8% to schools and 46.2% to child care facilities. As of 2025, 14.5% of those funds have been deployed, with the remainder available as facilities complete their remediation projects.

**How to read these charts:** The three donut charts above show: (left) the split of grant applications between schools and child cares, (center) the split of grants awarded - identical to applications because all 13 were funded - and (right) how much of the \$863,000 total has been used to date (14.5%) versus what remains available for the duration of the grant (85.5%).



*Lead Remediation in Drinking Water in Schools and Child Cares Grant 2024–2027*

<p><b>MDH provides eligible schools and child care providers:</b></p> <ul style="list-style-type: none"> <li>✓ Free lead test kits and lab analysis</li> <li>✓ Education and technical assistance</li> <li>✓ Contractor support for sample collection</li> <li>✓ Grant funding for remediation projects</li> <li>✓ Public interactive map of results by facility</li> </ul>	<p><b>2023 legislative updates strengthened protections:</b></p> <ul style="list-style-type: none"> <li>✓ Child care centers added to lead testing requirements.</li> <li>✓ Remediation trigger lowered to 5 parts per billion.</li> <li>✓ Annual public reporting and an online results map were created.</li> <li>✓ Dedicated grant program was established for school and child care remediation.</li> </ul>
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All results, metrics and the interactive lead testing map for school and child care facilities using the Water Infrastructure improvements for the Nation (WIIN) grant funds, are publicly available through the [By the Numbers: Program Dashboard \(https://www.health.state.mn.us/communities/environment/water/schools/leaddashboard.html\)](https://www.health.state.mn.us/communities/environment/water/schools/leaddashboard.html) on the MDH website.

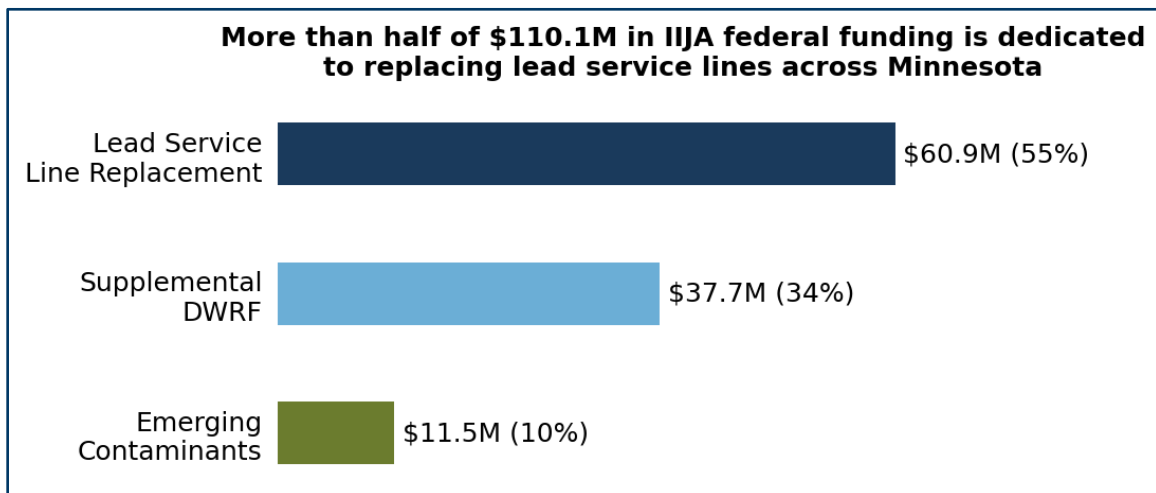
## What MDH is working on now and next

MDH continues to address current challenges within Minnesota's public water systems while planning proactively for future needs. The strategic initiatives for 2025 and beyond are designed to ensure a safe, reliable, and equitable drinking water supply for all Minnesotans. These efforts focus on addressing emerging and newly regulated contaminants, advancing health equity, strengthening public health protections, and reducing risks associated with lead and copper. Together, they reflect a comprehensive approach to improving water system safety, resilience, and equity across the state.

### Infrastructure funding

The DWRP, Minnesota's primary vehicle for low-interest loans and principal-forgiveness grants to public water systems, was significantly expanded by the Infrastructure Investment and Jobs Act (IIJA), which added five years of dedicated funding for emerging contaminants and lead service line replacement. The chart below shows the most recent year's allotment, updated to reflect 2025 funding levels.

**How to read this chart:** Each horizontal bar represents one IIJA funding category. Bar length reflects the dollar amount allocated. Values and percentages appear to the right of each bar.



The intent of Minnesota's program is to replace lead service lines at no cost to the property owner, dependent on funding availability.

## Source Water Protection grants

In 2025, the grants program launched a new online system for applying for grants. The new database allows for streamlining of the grants application process. Applicants can track progress of their grants online, collaborate with MDH staff or others on their application, complete reporting requirements, and more.

Due to the launch of this new database, only one open grant round was offered in 2025, instead of the customary two. Despite this, the grants program processed and funded 107 projects, only 17 less than in 2024 when there were two rounds.

## Funding for lead service lines replacement

### A \$243 million statewide commitment

**\$243M** committed statewide for lead service line removal and replacement

**2033** statewide goal to replace all lead service lines in Minnesota

**90,000** estimated lead service lines still in the ground across the state

In 2024, MDH achieved 100% submission of lead service line inventories, with every public water system submitting its inventory on time, a national first.

In 2025, MDH continued requesting inventory updates: 98% of systems submitted updates, and 95% of systems have completed customer notifications about their service line material.

Minnesota has a goal to replace all lead service lines by 2033, and the state has thus allocated \$243 million to support lead service line removal and replacement.

MDH and the University of Minnesota developed the [Minnesota Lead Inventory Tracking Tool \(https://maps.umn.edu/LSL/\)](https://maps.umn.edu/LSL/), which shows the service line material for buildings connected to public water supplies. A recent update added legislative district data, helping legislators understand what is in the ground in their districts. Residents can enter their address to see what type of service line connects their home to the water main.

The Lead and Copper Rule Improvements, finalized by EPA in 2024, go into effect November 1, 2027. They require faster lead service line replacement, stricter sampling, and stronger protection for historically underserved communities. MDH is preparing for these requirements through database upgrades and monthly training offered through the Minnesota Rural Water Association.

## Emerging contaminants: Minnesota is ahead of the curve

One way MDH ensures the safety of drinking water is by staying ahead of contaminants of emerging concern (CECs). CECs are contaminants that have been newly discovered in the environment or are drawing increased attention because of new scientific information about their health or environmental effects. They can be naturally occurring or human made. Addressing CECs proactively is a critical part of Minnesota's long-term water protection strategy.

### Per- and polyfluoroalkyl substances (PFAS)

In 2025, MDH contracted WSP USA, Inc. to collect more than 1,800 per- and polyfluoroalkyl substance (PFAS) samples at community and noncommunity systems across the state. The majority of results were below the MCLs. MDH staff are working directly with systems whose results exceed the MCL to reduce PFAS exposure. MDH staff also participated in community meetings to share information about PFAS regulations, testing, and results. Residents can look up results for their system using MDH's [Interactive Dashboard for PFAS Testing in Drinking Water](https://www.health.state.mn.us/communities/environment/water/pfasmapp.html) (<https://www.health.state.mn.us/communities/environment/water/pfasmapp.html>).



### Drinking Water Ambient Monitoring Program

The [Drinking Water Ambient Monitoring Program](https://www.health.state.mn.us/communities/environment/water/unregcontam.html) (DWAMP) provides ongoing, permanent monitoring capacity for CECs and other priority contaminants in drinking water sources across the state. The program's goals are to address public health concerns about CEC exposure and support data-driven water management decisions by characterizing water quality conditions in drinking water sources statewide.

DWAMP's primary components include proactive investigative monitoring for emerging contaminants, follow-up monitoring for systems with past low-level CEC detections, watershed-scale characterization to identify vulnerable aquifers, and seasonal surface water investigations. Contaminants tested in 2025 include PFAS, nitrate, arsenic, manganese, lead, bacteria, 1,4-dioxane, and cyanotoxins. Results from 2025 sampling will be posted on the DWAMP webpage when data analysis is complete. DWAMP is supported by the Minnesota Clean Water Fund, established by the 2008 Clean Water, Land and Legacy Amendment.

## Resilient water systems

<p><b>Climate resilience</b></p> <p>MDH is developing resources to help systems drill backup wells and purchase emergency generators; critical for small systems that rely on a single water source.</p>	<p><b>Emergency preparedness</b></p> <p>MDH requires many systems to maintain emergency response plans covering floods, power outages, contamination events, and infrastructure failures with built-in rapid-response protocols and coordination with local health departments.</p>	<p><b>Cybersecurity</b></p> <p>All community systems using operational technology must perform annual cybersecurity assessments per the 2018 America's Water Infrastructure Act. MDH reviews findings during routine inspections and verifies annual certification</p>
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### Climate resilience

Climate resilience means being able to anticipate, prepare for, and respond to the impacts of climate change on drinking water systems. MDH has a dedicated climate workgroup that advances climate resilience for Minnesota's drinking water. The group provides technical assistance, training, and maintains an inventory of public wells located within floodplains helping identify water systems at high risk during flooding events.

MDH is also developing resources to help water systems drill backup wells and purchase emergency generators. Many small systems rely on a single water supply well. A second well can provide backup when an extreme weather event disrupts or contaminates the primary supply. Similarly, an emergency generator can keep a system running when power is lost, keeping water flowing to the people who need it. These are important long-term investments in resilience for small systems and the communities they serve.

Along with state and local partners, MDH is helping implement the state Climate Action Framework to ensure the health, well-being, and resilience of communities in the face of climate change.

### Emergency preparedness

Ensuring the safety and resilience of Minnesota's drinking water systems is more critical than ever. Every water system in the state is recommended to have a comprehensive emergency preparedness plan in place to respond to unforeseen challenges including natural disasters, contamination threats, power outages, and infrastructure failures. A well-prepared system can mean the difference between a swift recovery and prolonged disruption for the communities it serves.

MDH requires many public water systems to develop detailed emergency response plans that address a range of potential crises. These plans include strategies for rapid response, clear communication protocols, and coordination with local health departments and emergency services. MDH also provides guidance on maintaining safe drinking water supplies during emergencies, ensuring communities are ready to recover quickly. For more information, visit

[Drinking Water Safety in Emergencies \(https://www.health.state.mn.us/communities/environment/emergency/water/index.html\)](https://www.health.state.mn.us/communities/environment/emergency/water/index.html) on the MDH website.

## **Cybersecurity**

Water systems across the country have faced cybersecurity threats. The Federal Bureau of Investigation (FBI), National Security Agency (NSA), and Cybersecurity and Infrastructure Security Agency (CISA) have all issued advisories about state-sponsored cyberoperations targeting critical infrastructure including U.S. water and wastewater facilities.

Cybersecurity is a required component of the 2018 America's Water Infrastructure Act. Community water systems serving a population of 3,300 or more must assess cybersecurity threats as part of a risk and resilience assessment and incorporate cybersecurity strategies into their emergency response plans. All community water systems in Minnesota that use operational technology must perform a cybersecurity assessment every year. MDH reviews findings during routine inspections, ensures issues are addressed, and requires systems to certify annually that an assessment has been completed.

## Public health education and community engagement

Minnesotans highly value their drinking water, and engaging with communities about water questions is a core DWP activity.

### We Are Water MN

We Are Water MN is a traveling exhibit hosted in communities across the state since 2016. Rooted in community engagement, it fosters partnerships and helps residents connect to their relationship with water. MDH staff support the program by participating in the planning committee, interviewing host site applicants, and contributing local source water and drinking water information.

We Are Water MN is made possible by the Clean Water Fund.

**2025 We Are Water MN host cities:** Henderson • Ely • Minneapolis • Bloomington

### Eco Experience 2025 - Minnesota State Fair

The Environmental Health Division, in partnership with MDH staff, participated in the 2025 Eco Experience exhibit at the Minnesota State Fair. The team hosted an interactive display on drinking water and groundwater in Minnesota.

The exhibit helped fairgoers understand how many Minnesotans rely on groundwater versus surface water, and the differences between public water systems and private wells. Visitors could operate a hand-crank water pump connected to a fish tank and model piping system — showing how water moves from underground aquifers into homes, schools, and buildings.



*Photo: MDH staff at the Eco Experience 2025 interactive display*

## For more information

This report provides an overview of 2025 monitoring results and health-related violations. A detailed violation report listing all SDWA violations in Minnesota for 2025 is available from MDH's Drinking Water Protection Section.

### MDH Drinking Water Protection

health.drinkingwater@state.mn.us

651-201-4700

PO Box 64975, St. Paul, MN 55164-0975

### Online Resources

- Consumer Confidence Reports (local water quality report)
- Minnesota Lead Inventory Tracking Tool (LITT)
- PFAS Interactive Dashboard for Drinking Water
- Lead in Drinking Water Map (Schools & Child Care)
- Service Line Replacement Priority Map
- DWAMP Monitoring Reports

## Partners and acknowledgments

Protecting Minnesota's drinking water is a shared responsibility. MDH thanks all the individuals, organizations, and agencies who make this work possible.

- Minnesota Rural Water Association
- American Water Works Association Minnesota
- University of Minnesota
- Minnesota Ground Water Association
- Minnesota Department of Agriculture
- Minnesota Pollution Control Agency
- Minnesota Board of Water and Soil Resources
- Metropolitan Council
- United States Environmental Protection Agency
- Public Water System Operators Statewide
- We are Water MN Community Partners... and many more.